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ART. VI.—*Fauna Americana; being a Description of the Mammiferous Animals inhabiting North America*. By RICHARD HARLAN, M. D. Philadelphia. 1825. A. Finley. 8vo. pp. 318.

THE object of this work is to present, under a systematic arrangement, a scientific history of all the mammiferous animals of North America, and it is probably the first attempt of the kind. The object, however, which is professed in its title, is not wholly followed up in the body of the work; the animals of Mexico being avowedly excluded from the description and arrangement, although, in the preface, an enumeration is given of those known to exist in that country. The number of animals, described within the region embraced by Dr Harlan's plan, is greater than we should have at first supposed to be now known to naturalists. He has been able to distinguish, he remarks, one hundred and fortyseven species, with considerable accuracy. From his preface we quote the following passage.

‘A work, having for its object the illustration of the natural history of our country, cannot fail to prove interesting, and has long been a desideratum to naturalists. However unqualified for the task, I have nevertheless found ample room for additions, alterations, and improvements. On the *utility* of the undertaking it will be unnecessary to insist, when, on referring to the latest authorities who have treated of this subject, we are struck with the confusion, the errors, and the deficiencies, which still prevail. In the very latest work, Desmarest's *Mammalogie*, published in the year 1820, which professes to describe all the species of *Mammalia* hitherto known, the number inhabiting North America is limited to one hundred *species*. Of these many are described as uncertain, and his accounts of the manners and habits of most of them are at best deficient.’

What these additions, alterations, and improvements are; in what manner confusion has been reduced to order, errors corrected, and deficiencies supplied, may appear in the sequel. Meantime, to exhibit the author's labors within a small compass, we have prepared, and think proper to insert in this place, a catalogue of the animals described in his work, in their systematic order as marshalled by him. This will serve at once to show the field over which his labors have been

spread, and give those, who seldom consult books of this description, an opportunity of taking in, at a single view, the whole of the animals of this class, found in this part of North America. In order to assist in the discrimination of the names belonging to genera and species, those of genera are printed in small capitals, those of species in the common small type. Those genera and species introduced by Dr Harlan, as being first noticed, described, or named by him, are in italics, and those which have been only known in the fossil state, have an asterisk prefixed.

CLASS MAMMALIA.

ORDER I. PRIMATES.

HOMO. 1 sapiens. American Variety.

ORDER III. CARNIVORA.

Family Cheiroptera. Tribe Vespertilio.

RHINOPOMA. 1 caroliniensis.

VESPERTILIO. 1 caroliniensis, 2 noveboracensis, 3 pruinusos, 4 arquatus.

TAPHOZOUS. 1 rufus.

Family Insectivora. First Division.

SOREX. 1 constrictus, 2 araneus, 3 parvus, 4 brevicaudatus.

SCALOPS. 1 canadensis, 2 *pennsylvanica*.

CONDYLURA. 1 cristata, 2 longicaudata, 3 *macroura*.

TALPA. 1 europea.

Family Carnivora. First Tribe. Plantigrada.

URSUS. 1 arctos, 2 cinereus, 3 americanus, 4 maritimus.

PROCYON. 1 (URSUS) lotor.

TAXUS. 1 (MELES) labradoria, 2 jeffersonii.

GULO. 1 arcticus.

MUSTELA. 1 vulgaris, 2 erminea, 3 *lutreocephala*, 4 vison, 5 canadensis, 6 martes.

MEPHITIS. 1 americana.

LUTRA. 1 brasiliensis, 2 marina.

CANIS. 1 familiaris, 2 lupus, 3 lycaon, 4 latrans, 5 nubilus, 6 vulpes, 7 argentatus, 8 decussatus, 9 virginianus, 10 fulvus, 11 cinereo-argenteus, 12 velox, 13 lagopus.

FELIS. 1 concolor, 2 onca, 3 pardalis, 4 canadensis, 5 rufa, 6 fasciata, 7 montana, 8 aurea.

Tribe. Carnivorous Amphibious Animals. (Carnivora pinnipedia.)

PHOCA. 1 cristata, 2 vitulina, 3 groenlandica, 4 fetida, 5 barbat, 6 (OTARIA) ursina.

TRICHECUS. 1 rosmarus.

Family Marsupialia.

DIDELPHIS. 1 virginiana.

ORDER IV. GLIRES.

Section I.

CASTOR. 1 fiber.

*OSTEOPERA. 1 **platycephala*.

FIBER. 1 zibethicus.

ARVICOLA. 1 amphibioides, 2 xanthognatha, 3 *palustris*, 4 *hortensis*, 5 floridanus, 6 pennsylvanica.

LEMMUS. 1 hudsonius.

MUS. 1 rattus, 2 sylvaticus.

PSEUDOSTOMA. 1 bursarius.

GERBILLUS. 1 canadensis, 2 labradorius.

ARCTOMYS. 1 monax, 2 empetra, 3 ludoviciani, 4 tridecemlineata, 5 franklinii, 6 richardsonii, 7 pruinosa, 8 parryi, 9 brachyura, 10 *latrans*, 11 rufa.

SCIURUS. 1 cinereus, 2 capistratus, 3 rufiventer, 4 niger, 5 magnicaudatus, 6 quadrivittatus, 7 lateralis, 8 grammurus, 9 striatus, 10 hudsonius, 11 ludovicianus.

PTEROMYS. 1 volucella.

HYSTRIX. 1 dorsata.

LEPUS. 1 americanus, 2 glacialis, 3 *virginianus*.

ORDER V. EDENTATA.

First Tribe. *Tardigrada*.

*MEGATHERIUM. 1 *cuvieri.

*MEGALONYX. 1 *jeffersonii.

ORDER VI. PACHYDERMATA.

First Family. *Proboscidea*.

ELEPHAS. 1 *primogenius.

*MASTODON. 1 *giganteum, 2 *angustidens.

Second Family. *Pachydermata, properly so called*.

SUS. 1 scrofa.

DICOTYLES. 1 torquatus.

TAPIRUS. 1 **mastodontoides*.

ORDER VII. PECORA.

Second Division. First Tribe.

CERVUS. 1 alces, 2 tarandus, 3 canadensis, 4 virginianus, 5 macrotis, 6 **americanus*.

Third Tribe.

ANTILOPE. 1 americana.

CAPRA. 1 montana.

OVIS. 1 ammon.

OVIOS. 1 moschatus.

BOS. 1 americanus, 2 **bombifrons*, 3 **latifrons*.

ORDER VIII. CETA.

First Family. *Cetacea Herbivora, Sirenia*.

MANATUS. 1 latirostris.

RYTINA. 1 (STELLERUS) borealis.

Second Family. Ceta or Whales proper. First Division.

DELPHINUS. 1 coronatus, 2 delphis, 3 canadensis, 4 phocœna,
5 gladiator, 6 grampus, 7 leucas, 8 anarnachus.

MONODON. 1 monoceros, 2 microcephalus, 3 andersonianus.

Second Division.

PHYSETER. 1 macrocephalus, 2 trumpo.

BALÆNA. 1 mysticetus, 2 glacialis, 3 nodosa, 4 gibbosa, 5 gibbar, 6 boops, 7 rostrata.

Unless there is some oversight in making out this catalogue, which we presume there is not, the following table exhibits the number of species in each order; and, by way of comparison, we place by the side of it, a table given by the author, in his preface.

| <i>Orders.</i> | <i>Number of Species.</i> | <i>Author's Table.</i> |
|------------------|---------------------------|------------------------|
| 1. Primates, | 1 | 1 |
| 3. Carnivora, | 62 | 60 |
| 4. Glires, | 42 | 37 |
| 5. Edentata, | 2 | 6 |
| 6. Pachydermata, | 6 | 2 |
| 7. Pecora, | 13 | 13 |
| 8. Ceta, | 22 | 28 |
| | <hr/> 148 | <hr/> 147 |

It will be perceived, that, if this enumeration is to be trusted, and great care has been taken to make it accurate, the author's table is wrong in five orders out of seven. Two of these errors may, however, be attributed to an accidental transposition of numbers, viz. orders 5 and 6. For the rest, there seems to be no such excuse. He speaks, also, in the preface, of eleven fossil species; only ten are contained in the above list. He must, therefore, intend to include a fossil species of *Manatus*, which is neither named nor numbered, and which, if admitted, will make the number of the last order 23, and the total of all the orders 149.

In the construction of his orders, Dr Harlan appears to have followed the *Règne Animal* of Cuvier, and we have numbered them accordingly. The names, however, are adopted, partly from that author, and partly from Linnæus. Thus, for the first order, he retains the Linnæan denomination, Primates; although he excludes from it the bats, and, we presume, the monkeys also, which originally belonged to it. To the fourth order he gives the name Glires, instead of

the more modern and expressive one of *Rodentia*. To the seventh, the proper appellation, *Ruminantia*, is applied in the preface, but in the body of the work, this is discarded for *Pecora*; and so, also, *Cetacea* in the preface becomes *Ceta* in the sequel. There does not appear to be any sufficient reason for thus retaining the Linnæan names of a few of the orders, whilst their constitution, and the names also of all the others, are adopted from a different system. Names themselves are not originally of any very great consequence, yet they become so, when they have been employed for a long time to designate particular things. It is not, perhaps, in itself a matter of much importance, whether the first order of *Mammalia* be denominated *Primates*, or *Bimana*; but since it is generally known that the naturalists, who have severally adopted these names, constituted the order in a manner entirely different; that Cuvier places in it man alone, whilst Linnæus associated him with monkeys, lemurs, sapajous, and bats; the terms are gradually understood in a specific sense, and bear always the meaning attached to them by those, who first introduced them. At all events, the adoption of any new method of arrangement, or the use of any terms in a sense differing from that generally received, should be premised by some sufficient explanation.

It is stated in the preface, that ‘twentyfive species are common to both continents, without including the cetaceous animals.’ That is to say, about one fifth part of the quadrupeds, inhabiting North America, are common to it with the Eastern continent. Dr Harlan is too ready to admit the identity of species of the new, with others of the old world, or at least he does it without showing that deliberation, which the decision demands, and without apparently considering the doubts, which rest upon the subject. It certainly admits of a doubt, whether any species of animals is common to the two continents, except where it may have been transported from one to the other, by some accidental mode of conveyance, or unless it resides in the northern regions, and is capable of enduring the rigors of a polar winter, so that it may be supposed to have passed in some way from one continent to the other.

It is a general result of the observations, upon the distribution of both the vegetable and animal creation, that each

species appears originally to have inhabited some particular region, from which it has spread more or less extensively, according to its own nature, and the nature of the country in which it was first placed. Buffon remarked, that the animals of the old world were in general different from those of the new, and that the species common to both were such, as are able to endure the extreme cold of the arctic regions, and may therefore be supposed to have found a way from one continent to the other, where they approach very near together, and may have been formerly joined. Of the general truth of this statement, there is abundant proof. Whether there are not many individual exceptions is not so easily determined. All the largest, the most clearly described, and the most easily distinguished animals of the old world, are certainly peculiar to it; and although there may be in the new, animals closely resembling them, corresponding to them, and often mistaken for them, yet they are almost always specifically, and often generically distinct. Thus of the Proboscidean family, the living elephants are peculiar to the eastern continent; and fossil remains indicate the former existence in the western, of a race of animals resembling them in many important particulars, although generically distinct; whilst there is sufficient evidence, that a species of elephant, adapted by its structure to endure the cold of the northern regions, formerly existed in both. Of the celebrated ferocious animals of the feline race, we have not one. It is true we hear of the American tiger, and the American lion, but they are manifestly creatures smaller, less powerful, and less terrible. The wolf, on the contrary, whose constitution is hardy, and able to endure the rigors of a polar winter, is the same in Europe, in Asia, and in America. The two species of camel are confined to Asia and Africa. America has a genus, the Llamas, nearly allied, and not less adapted to the peculiar character of the countries in which it resides. The comparison might be carried farther, and it might be shown, that those species, which have been supposed common, have been small, obscure, imperfectly observed, not easily recognised, and incapable of that precise description, which may be given of the larger.

In confirmation of the same general view, it appears that the successive discovery of new and insulated portions of the

globe, as America and New Holland, has brought to light, not only new genera and species, but races of animals of a totally different kind, possessing strange, and before inconceivable characteristics. Thus, on the discovery of America, were first known those singular animals, the sloths, characterised by Buffon as defective monsters, and rude and imperfect attempts of nature; and the marsupial animals, which were then looked upon as strange and anomalous, in their structure and habits. In New Holland an entirely new order of things was opened to the eyes of naturalists. The world of nature, in that remote region, seemed to have been formed upon a new model. The marsupial animals, before considered as exceptions to the general rules of animal conformation, were here found to predominate. Elsewhere regarded as rarities, here there was little else, till, as exceptions to these exceptions, to the infinite disturbance of all quiet and old fashioned naturalists, the monotremous genera, and among them that strange beast, the ornithorhynchus, were brought to light; a tribe of animals, that seem to scorn classification, set rule and order at defiance, and although properly neither flesh, fowl, nor reptile, yet bear such resemblance to each, as to puzzle any one who shall attempt to fix their place in the system of nature.

Another fact to the same purpose is, that of the various animals which inhabit the arctic regions, and whose constitution renders it impossible for them to bear the journey across the tropics, probably not one is found in the antarctic. This is not only true of the land animals, but also of those inhabiting the sea, from the largest, down to the most minute and inconsiderable. It is remarked by MM. Peron and Le Sueur, that upon an examination, not merely of the Dorides, the Aplysias, &c. but carried down to the Holothurias, the Actinias, and the Medusas, or even still farther to the sponges, universally regarded as occupying the lowest rank of animal existence, it is found that out of the whole immense multitude of these antarctic animals, not one is known in the northern seas.

Dr Prichard, a most intelligent English writer, has given the subject a full consideration in his 'Researches into the Physical History of Man,' a work full of learning and ingenuity. After an examination of all the instances in which it

might be supposed, that species were common to the eastern and western continents, he arrives at the conclusions, that no animal is common to the warm parts of the two continents; that no European species is indigenous in both, which is not a native of countries north of the Baltic in one, and of Canada in the other; that no Asiatic species is found in America, except such as inhabit the northern parts of the Russian empire, and most of these in those districts which approximate to America, whilst some have left proofs of their existence there in their fossil remains, and some have even been traced through the intervening islands; and that scarcely any animal has an extensive range in the northern regions of either continent, which is not common to both. All these considerations point to the general inference, that these tribes are common to the two continents, because, from their locality and habits, they have been enabled in some way to effect a communication from one to the other; but that, originally, each continent had its peculiar stock of mammiferous animals, which has continued peculiar in all parts of the continents, except where such a communication may be conceived, in the course of ages, to have taken place.

It therefore appears highly probable, that, with the limitations made above, the species aboriginal in each continent are also peculiar to it. And although this may not be conclusively established, the result at least is inevitable, that it behoves naturalists to be very cautious in admitting the identity of American and foreign species; that it should not be done except after a thorough examination of both external and internal characters, and then only by the concurrent opinion of competent judges.

Dr Harlan is unfortunate in the connexion and arrangement of his species, particularly in the subdivisions of tribes, families, and subgenera. He in no place directly informs us, whose system of subdivisions he has adopted. In a work confined to the animals of a particular country, we can of course have only parts of a methodical arrangement, but it is of little use to introduce these parts, when the student has no clue, by which to discover what and where is the whole to which they belong. Divisions of this sort have no use or meaning, except in relation to one another. Class, order, genus, and species, are terms universally received and au-

thorised by long use ; their extent and meaning are generally understood. But suborder, family, tribe, and subgenus, not to say section and division, are terms whose signification is by no means accurately defined. They are too often used in a vague sense, and by different authors in a very different one. There is a considerable uniformity in the arrangement of the animal kingdom, by naturalists, into the divisions of the first kind ; they have proceeded commonly upon similar principles, and have arrived at results not very unlike. But with regard to the second kind, much diversity occurs, both in the principles by which authors have been governed in making them, and also in the meaning of the terms used to express them.

A beginner in natural history would be perpetually perplexed, and be liable to constant error, from the want of attention to this point, in the *Fauna Americana*. This work may be likely to fall into many such hands, and be taken as a guide in the study of this branch of science. It should, therefore, have been carefully guarded. How careless and superficial the author has been in this very particular, we proceed to show by a variety of examples.

The order, Carnivora, he subdivides into families according to Cuvier. The first family is that of Cheiroptera, containing animals of the bat kind. This family, as it appears, he subdivides into tribes, and immediately announces, without preparation, '*Tribe Vespertilio.*' Under this tribe, after inserting and describing the genus *Rhinopoma*, he introduces the *genus Vespertilio*, with which he gives the dental formula of Linnæus and Desmarest, marked 1 and 2, implying, as one would imagine, that reference was made to two subdivisions of the genus, but whether this was intended, or whether the formulæ were introduced merely for the purpose of comparison, does not appear, and we are left in doubt what use to make of them. Then follows the generic description, and one species numbered 1. Immediately after the description of this species, a new division comes upon us unexpectedly, entitled '*1st Division, VESPERTILIO, Geoff.*' with a dental formula differing slightly from that of Desmarest, a short description, and an enumeration of the species hitherto observed. Three species of *Vespertilio* are then described, which, without reference to that already described,

are numbered 1, 2, 3, and among them one which is not of those enumerated, but a page before, as the only ones belonging to this division.

Now it is hard to make anything of this, and yet the author, for aught we know, may have understood himself very well, and had a very clear object in what he has done. Still we do not keep up with him in his easy transition from genus to species, from species to division, and from division to species again. This, however, might have been accidental were it the only instance, but it is not so. Proceeding to the next family, Insectivora, we find immediately after the character of the family, a '1st *Division*,' intended to include the first *tribe* of this family, according to Cuvier, from whom in fact the description of its character is almost literally translated. Here is an instance of the vague use of terms, concerning which we have spoken. *Tribe* was used under the former family to designate a subdivision of the genera belonging to a family, whilst now the term *division* is used for a similar purpose, which, under the same family, was employed to stand for the parts of a subdivided genus. But although the first division, or, more properly, tribe of this family, is thus noticed and characterised, we look in vain for the second. This is entirely and unaccountably omitted, although there are two genera belonging to it, *Condylura* and *Talpa*, which stand thus in the work in a tribe to which they do not belong, and with a character to which they do not correspond.

The family Carnivora follows next, and this is by Cuvier divided into three tribes, Plantigrada, Digitigrada, and Amphibia. Genera belonging to all these tribes are contained in Dr Harlan's book, but he announces only two. The plantigrade animals are defined, (p. 45,) and called '1st *tribe*,' but we hear no more of tribes, till fifty pages farther onward we encounter the third tribe, Amphibia, which, however, is not called third, but is introduced simply thus, '*Tribe. CARNIVOROUS AMPHIBIOUS ANIMALS (carnivora pinnipedia).*' This method of arrangement, taken in good earnest, would actually include all the digitigrade animals, such as the weasel, fox, wolf, and cat, under the first tribe.

In the next order, Glires, a similar negligence occurs. This order is generally divided into two families, the charac-

ter of which is founded upon the clavicle, which is strong and powerful in one, and only rudimentary and imperfect in the other. The first of these is announced in its proper place, but is styled *section*; another term to express a division corresponding to those, which had been before introduced under a different name. Of the second we discover no intimation, although two genera are described, which are properly comprehended under it.

These are instances of carelessness, which ought not to have been suffered to appear in a scientific work, professing to remove confusion, correct errors, and supply deficiencies. They are so palpable, indeed, that were they not so numerous, one would have attributed them to inaccuracy of the press. There are others relating to the more minute details of this book, a few of which only can be noticed. The genus *Phoca* affords a memorable example of the loose and incomplete manner, in which the author treats his subject. This genus, it may be proper to premise, has been subdivided by Peron into two subgenera, one of which retains the denomination *Phoca*, the other has received that of *Otaria*. Dr Harlan gives in the first place five dental formulæ, but without the smallest intimation of the purpose for which they are introduced; no use is made of them, no subdivision founded upon them, they have nothing to do with the two subgenera; they correspond to nothing which he has given us with regard to any other genus, except perhaps *Vespertilio*, which, as we have seen, is far from being so full of light, as to be able to impart any. Having described the genus, the subgenus *Phoca* is announced, which is numbered 1, and its character given. Then follow six species numbered from one to six, the sixth of which belongs to the subgenus *Otaria*, and is named *Otaria* with *Phoca* as a synonym, whilst the notice and character of subgenus 2, which should precede it, are omitted. What makes the matter worse is, that in the next sheet, into which the account of this genus extends for a few lines, a note is appended, containing the notice and character of *Otaria*, omitted in its proper place, a notice which no one would comprehend, who was not already acquainted with the history of the genus. The perspicuity, moreover, of a work of science should not depend upon the contingency of the au-

thor's perceiving his errors and omissions, in season to correct them in the next proof.

Several errors occur in the arrangement of the names and synonyms of genera and species, which render it uncertain, what the name of the genus or species in question is really intended to be. Thus, under the genus *Procyon*, we find the species *Ursus lotor*; under *Taxus*, *Meles labradorius*; under *Rytina*, *Stellerus borealis*. This is explained by stating, that, in the first case the synonym of the species is placed instead of the name, the name being among the synonyms, whilst in the second and third the same mistake occurs with regard to the synonym of the genus. This at least appears to be the explanation. There are errors of a different kind in the names. Thus, we have a genus called *Taphozous taphiens*, the French name, (les Taphiens) or the name of another genus having crept in by accident. The genus *Felis* is styled, 'Cat or *Felis*;' and in the same way we have 'Pecari or *Dicotyles*,' and 'Cachalot, *Physeter*.'

The style of Dr Harlan's work is loose, and indicative of haste and want of revision. Two or three examples will explain our meaning.

'The above *description*,' says the author, 'is taken principally from a prepared specimen in the possession of Mr C. Bonaparte, and *was killed* on the Blue Mountains, in the state of Pennsylvania.' p. 198. 'The *plane* of the occiput represents a *semicircle*.' p. 273. 'We are credibly informed by an *eyewitness of the fact*, that the Norwegian rat *did not make its appearance* in the United States, any length of time previous to the year 1775.' p. 149.

We intended to make a variety of other criticisms, both in matters of science and language, which are omitted, because, as it is impossible to notice them all, it is sufficient to have introduced enough to justify the opinions we have expressed. The work is, in fact, so constantly disfigured by instances of looseness, carelessness, and inaccuracy, as to destroy confidence in the fidelity of its execution. The author is evidently not deficient in knowledge of natural history; his errors have mainly arisen, as it appears to us, from the inconsiderate haste with which his work has been written, and hurried through the press. As further proofs of this haste, it may be stated, that Dr Harlan has inserted in his *Addenda*,

the description of a number of species, discovered by Messrs Lewis and Clarke, and described in the account of their Expedition up the Missouri many years since, a work to which he repeatedly refers in the body of his book ; and that, for the descriptions of nearly all the species of the last genus in the volume, *Balæna*, he refers us to *Bonnaterre's Ceto-logie*, instead of translating or abridging these descriptions, a task of which he has not been in other places very sparing.

There is almost a total want in this work of that mechanical assistance, which may be derived from a skilful application of the mode of printing, to the illustration of the details of natural history, Of the advantages which proceed from this source, even Cuvier has not disdained to avail himself in his great work, upon the classification of the animal kingdom ; and whoever has had occasion to consult it must have perceived the immense facility, which is thus afforded to the student. It is only to appropriate a particular type to the names, and to the descriptions appertaining to each division and subdivision, and the eye catches at once the relative importance and extent of what relates to each. This mechanical aid should never be forgotten ; it is of no trifling assistance even to the most experienced naturalist. But in the *Fauna Americana*, with a few exceptions, both titles and text are in the same dead unvaried type ; the former in italics, the latter in roman ; so that the clumsy expedient is adopted, of repeating the words genus, subgenus, and species, whenever these divisions occur.

It will be observed upon reference to the catalogue, on a preceding page of this article, that among the animals of North America, Dr Harlan has inserted a considerable number of fossil species. In fact, the whole of those of the order *Edentata*, and all but one of the indigenous animals of the order *Pachydermata*, are fossil. The results which have been obtained, by the investigations of some European naturalists into the characters of fossil bones, have something in them grand and imposing. With regard more particularly to those of Cuvier, there seems to be no reason to doubt that the conclusions, at which he has arrived, possess all the certainty of which the subject is capable. The facilities afforded by his situation for the pursuit of this branch of study, the extent of his attainments in the comparative anatomy of living animals,

and, with all this previous qualification, the slow, cautious, and deliberate manner in which he comes to results, give him strong claims to our confidence. Yet it is hard to go along with him when he expresses his belief, that from the smallest remaining bone of any animal, it is possible to determine not only its order, but its genus and species; in short, to reconstruct its whole anatomy; just as it is possible for the mathematician, from any given equation of a curve, to demonstrate all its properties. That there is such a relation between the parts of the body of every animal, as is asserted by this distinguished anatomist, and that the peculiarity, which every species exhibits as a whole, is also impressed upon even the most minute part of its fabric, may be readily admitted, but that this character is cognisable in the fang of a cuspidatus, the smallest bone of the tarsus, or one of the extreme phalanges, exceeds our belief. We cannot forget, in expressing this opinion, the mistake of a European anatomist, second to but few of his time, who, in examining some fossil bones, placed an important fragment of the head in a reversed position, and thus gave an entirely new face to the animal. It would not be passing strange, could these antediluvian quadrupeds rise up in judgment against the philosophical disturbers of their remains, if they should exhibit metamorphoses, wrought by the hand of science, extremely inconvenient, and somewhat inconsistent with their former habits. The mammoth, perhaps, might not be sufficiently grateful to anatomists for the elephantine proboscis, so generously bestowed upon him; and the megalonyx might very reasonably prefer ranging the woods, a ferocious and majestic beast of prey, as Mr Jefferson describes him, to a life of idleness and inactivity, under the very different character of the three toed sloth of the antediluvian world, according to the award of Cuvier.

Seriously, we think that the splendid discoveries, which have resulted from the extraordinary attainments of the French anatomist, and we would not speak of them except with respect and confidence, are likely to lead others into very imperfect and crude speculations upon fossil bones. We do not object to the description of all such remains fully and accurately, in connexion with the description of the living animals of the country where they are found. This is proper, and indeed highly important and interesting. But we do

strenuously object to their erection into genera and species, except upon the most undoubted authority, and to their being thus unceremoniously embodied in the natural history of a country. Too much doubt must hang over the conclusions at which most naturalists arrive, on such points, to admit of so decided a step as this. Dr Harlan has thought otherwise. He has seen fit, upon the authority of a mutilated skull, found on the shore of the river Delaware, to erect a new genus, *osteopora*; and upon no better foundation, than a single molar tooth, exhumed in the western part of our country, has built a new extinct species of Tapir, which he has had the satisfaction of christening with his own hand. Farther than this; Dr Wistar, in a paper read to the American Philosophical Society, described certain fossil bones, presented by Mr Jefferson, which he believed to belong to species of the genera *Cervus* and *Bos*, but modestly forbears to systematise them. Our author has done this office for these neglected reliquæ, and they accordingly figure among the mammalia of the United States, as the *Cervus Americanus*, *Bos bombifrons*, and *Bos latifrons*, all 'nobis,' which last term, as some of our readers may need to be informed, signifies that the genus, or species, after which it is inserted, has been constituted and named by the naturalist in whose work it appears.

The consideration of this subject suggests another, which is of importance to the accuracy and soundness of American natural history. We mean the growing propensity of naturalists to construct new genera and species. This disposition is unphilosophical and productive of confusion. It is a departure from the true spirit of scientific investigation. It is not so easy a matter for men, of even good attainments in natural history, to determine whether a species has been before described and named, or not. So imperfect are the short descriptions which are often given, so loose and vague is the language of too many naturalists, so extremely difficult indeed is the task of clear description, and so few are there who perform it well, that the identification of a specimen with any known species or genus, is frequently a difficult task, and we should be very cautious in concluding because we cannot identify it, that it is therefore something new. The creation of a new genus in natural history is a weighty matter; it should not be lightly done, it should not be soon done; the

subject should be left for repeated consideration and consultation, and should not be ventured, except with the concurrence of more than one skilful naturalist, unless it be by some one whose attainments in science give his opinion weight and authority.

Much less importance is to be attached to the introduction of a new species, and still this requires far more hesitation, than most naturalists seem to feel. At any rate, it is not a matter which demands extraordinary haste. No particular evil results, if the animal in question goes without a legitimate name for a few short months. It is certainly a less evil, than that it should be taken for a new species, when it is in reality an old one, and be thus made to undergo the process of nomenclature a second time. Every new name, it must be recollected, contributes to swell the list of synonyms, already the burden of natural history. But it is the foible of scientific men, at the present day, that they are more anxious to make and promulgate discoveries, than to search out the truth. Some naturalists pride themselves vastly more upon having been the authors of new genera and species, than upon describing with accuracy those already known, ascertaining more exact marks of discrimination between them, or illustrating their character and habits; and yet he performs a far less useful service to science. We repeat, that the task of determining the character of an animal is by no means an easy one, and can be performed by few men with certainty.

Naturalists, of no mean celebrity, do indeed differ essentially in the conclusions at which they arrive, with regard to the same animal, even when possessed of equal means of judging, and equal qualifications. The simple inspection of any work of natural history is sufficient to show us, what confusion and uncertainty are introduced, by this proneness to making discoveries, and this overweening love of the fascinating pronoun *nobis*. The existence of this difficulty, and the obscurity consequent upon it, are admitted by the most eminent naturalists. It is remarked by Cuvier, that in the course of his investigations, he has sometimes found a single species, representing, by means of synonyms, several animals, so different frequently, that they did not even belong to the same genus; and sometimes, on the other hand, the same animal, reappearing in several subgenera and genera, and

even in different orders, as a distinct one. 'We have here an animal,' says Dr Harlan, speaking of the Rocky Mountain sheep, 'described for the first time in 1816, which has already been classed under four distinct genera, with nearly as many specific appellations.' To mend the matter, Dr Harlan places it under a fifth genus. For the pronghorned antelope, an animal of recent discovery, we have no less than half a dozen different names.

We cannot close this article, without expressing regret and strong disapprobation, at the manner in which are written two long notes in Dr Harlan's book, (pp. 140, 143,) concerning certain differences into which he has unluckily fallen with other naturalists, in describing and naming some species of the genus *Arvicola*. The contest maintained in these notes is quite below the dignity of science. With whom the fault rests, it is not for us to inquire, but we feel justified in saying, that, when personal jealousy is allowed to have an influence in constructing new genera and species, and when *nobis* is arrayed against *nobis* with an air of triumph, no good hope remains for the accuracy of investigations thus pursued, nor for the aid they will lend to the progress of genuine science.

ART. VII.—*Report of the Committee of Foreign Relations, of the House of Representatives of the United States, to which were referred the Memorials of certain Merchants, praying Relief for Losses sustained by French Spoliations.* 1824.

THE claim of the citizens of the United States for French spoliations, is one of immense amount. Studious to avoid exaggeration, and to reduce our statements even within the severest truth, we rated, in an article in our last number, the whole amount of American claims for foreign spoliations of all kinds, at twenty millions of dollars. Our readers will probably think we greatly erred on the side of moderation, when it is recollected, that Messrs Pinckney, Marshall, and Gerry, in 1799, stated the claim for French spoliations alone